Solutions for High Availability

EPS 6000
300/375/500 kVA

Uninterruptible Power Supply

Advanced Features

- Ultra energy efficient (up to 95%)
- Aircraft quality construction
- Digital Power Quality logic
- Advanced battery management
- Non-linear load optimized
- <4% output THD
- Modular assemblies
- Detailed remote monitoring and communication
- Computer aided diagnostics
- Industry leading reliability

The EPS 6000 has set the standard for critical power protection in high-powered environments. Chosen for some of the world's most mission critical applications, the EPS 6000's field proven performance delivers a level of comfort and reliability only available from MGE.

Featuring aircraft quality construction and MGE's Digital Power Quality (DPQ) logic, the EPS 6000 maximizes efficiency & output power quality under all load conditions. Optimized for 100% nonlinear loads, the EPS 6000 restricts output voltage distortion to under 4% even on 100% step loads. These rigid performance specifications guarantee computer grade power quality under the harshest conditions.

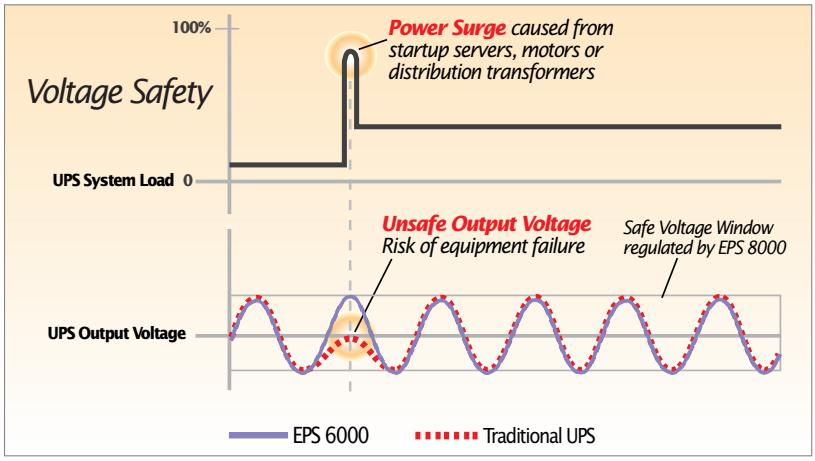
MGE UPS SYSTEMS
the world's largest and most trusted three phase UPS manufacturer

THE UNINTERRUPTIBLE POWER PROVIDER

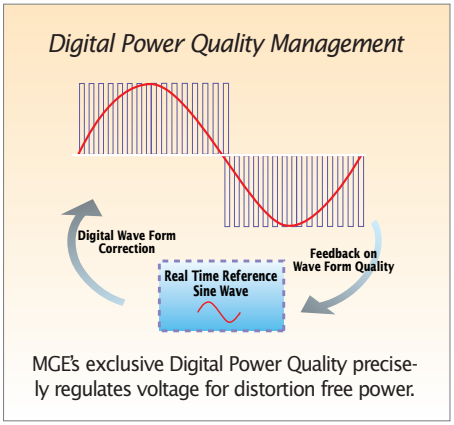
MGE
UPS SYSTEMS

Digital Power Quality Logic and IGBT Inverter Technology

MGE's unique digital inverter topology takes advantage of the clean switching characteristics of the new generation of IGBTs (Insulated Gate Bipolar Transistors), resulting in a simplified and more reliable inverter design. In addition to delivering a practically distortion free (<4% THD) output, the EPS 6000 also maintains precise voltage regulation on all phases even when exposed to large step loads/transients (common when starting distribution transformers and banks of IT equipment), a very unique but essential feature.



Superior step load capabilities separate the EPS 6000 from other UPS systems, providing the reassurance that your UPS output voltage will remain precisely regulated under all operating conditions.



MGE's exclusive Digital Power Quality precisely regulates voltage for distortion free power.

The **EPS 6000** *achieves these performance characteristics by generating the output waveform using true high frequency digital pulses (Pulse Width Modulation). Every pulse of the output waveform is precisely controlled by MGE's unique Digital Power Quality (DPQ) management system. The DPQ system compares the output waveform to a computer generated reference sine wave. A feedback circuit then actively corrects any waveform imperfections for clean, precision regulated power, and unprecedented dynamic load control.*

Generator Friendly Technology

Traditional UPS modules often require that the generator be oversized to many times that of the UPS output power to avoid UPS/generator interaction issues. This is largely due to the leading input power factor created by UPS input filters. The EPS 6000 uses a unique approach to input filtering offering optional passive filter solutions that maintain exceptionally low input THD, while ensuring that the power factor remains lagging or very close to lagging. A controlled input power factor minimizes the requirement for generator oversizing, resulting in significant cost savings and enhanced power system reliability.

MGE Input Filters Feature:

- Low Input Distortion
- Very Low kVAR
- No Leading Power Factor
- No Mechanical Switching of Filters

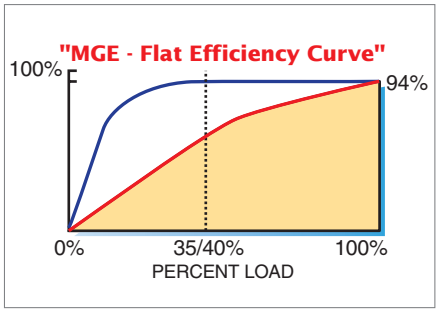
Input Filter Technology

Low kVAR Filter: The EPS 6000 offers a *low kVAR filter* which limits reactive current and leading power factor to far below that of conventional input filters. Unlike other contactor based solutions that disengage the input filter at low loads, the *low kVAR filter* is always engaged and uses no mechanical components.

Shunt Inductor Filter: For large UPS systems, the MGE *shunt inductor filter* offers *no leading power factor* under all operating conditions with an extremely low THD level. This permits one of the lowest UPS-to-generator sizing ratios of any UPS system, and unprecedented UPS generator compatibility.

High Efficiency for Cost Savings that Matter

High Efficiency for Cost Savings That Matter: The EPS 6000 boasts ultra high-energy efficiency even when lightly loaded, where most UPS operate. This is a major cost savings advantage as many other UPS drop their efficiency as the load drops. MGE's stable efficiency is due to its Digital Power Quality Logic system that constantly optimizes the switching frequency for the load level and load profile, minimizing switching losses.



EPS 6000 efficiency remains stable even when the UPS is lightly loaded, offering a large efficiency advantage over other UPS manufacturers.

Annual Cost Savings of a 1-3% efficiency advantage

	Efficiency Advantage		
UPS Load	**1%**	**2%**	**3%**
1,000 kW	$68,000	$136,000	$204,000
800 kW	$54,000	$108,000	$163,000
600 kW	$41,000	$81,000	$122,000
	Savings Per Year		

**Calculated as future value at 7% cost of capital compounded monthly at $0.1 kWh plus air conditioning costs. Savings will vary with energy rates.*

EPS 6000 ~ *Proven Quality and Performance*

Fault Tolerant Circuitry

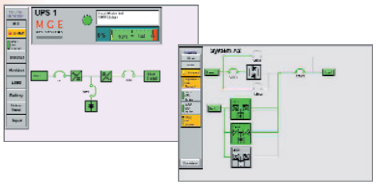
Robust enough to withstand the most difficult circumstances.

The EPS 6000 UPS is equipped with unique fault tolerant circuitry. Even when exposed to dead shorts on the output that often prove fatal to other UPS, the EPS 6000 will recover without sustaining damage or clearing fuses and immediately continue to protect the critical load. Because changes on the load side of the UPS are increasingly common, output fault tolerant circuitry is the best protection against user-induced faults and load side equipment faults.

*The EPS 6000 UPS has been installed in over **5,000 critical sites** world wide, making it the leading choice for data center critical power protection*

Graphical User Interface

EPS 6000 modules can be equipped with an optional state of the art color graphical user interface (GUI). In addition to displaying mimic diagrams, alarm/event logs and detailed operating parameters, the GUI is also equipped with a web enabled Ethernet port allowing the contents of the screen to be accessed over the Internet without the requirement for an external server or any specialized software.



Large Power Systems Solutions

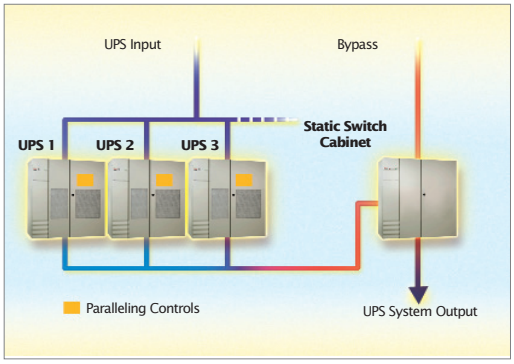
Why use the MGE Power Systems?

- Unique paralleling technology with controls/no single points of failure
- Critical Bus Synchronization for dual bus systems
- Complete product line to satisfy all project requirements
- Experienced Power Systems Team
- Proven track record on the world's largest projects

MGE's complete line of power system products offer the efficiency of a single vendor and benefit of a single source of project accountability!

Parallel Systems

The EPS 6000 can be paralleled with up to six modules for redundancy or capacity. MGE's unique Shared Parallel system places intelligence for paralleling in each individual UPS module, eliminating a centralized single point of failure. The output of each UPS are centrally bussed through a Static Switch Cabinet (SSC), which provides a seamless system transfer to a bypass source when needed.



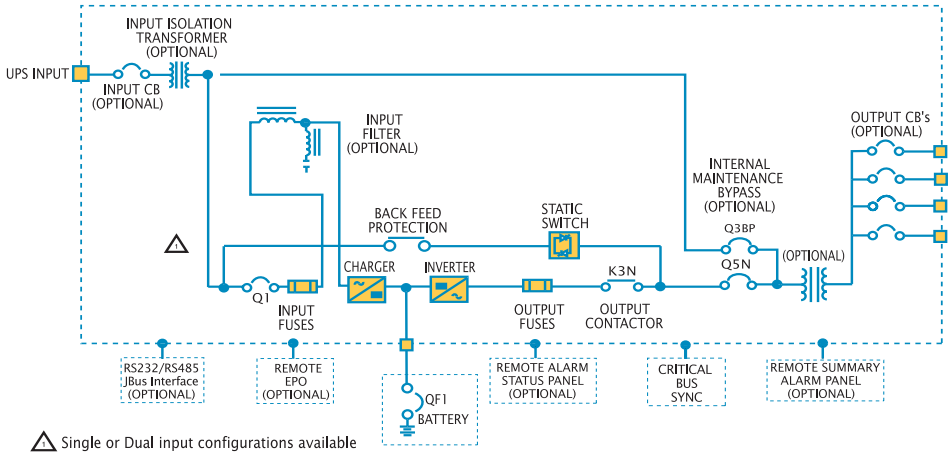
With MGE. . .You're Backed up by the Best Service Organization in the Industry

MGE's 150 factory trained Field Technicians are dedicated to exclusively servicing MGE equipment and are strategically located throughout North America ensuring a rapid response with 7x24 service. MGE's 100% solid state design (free of any manual calibration), modular components and Computer Aided Diagnostics facilitate rapid diagnostics and service.

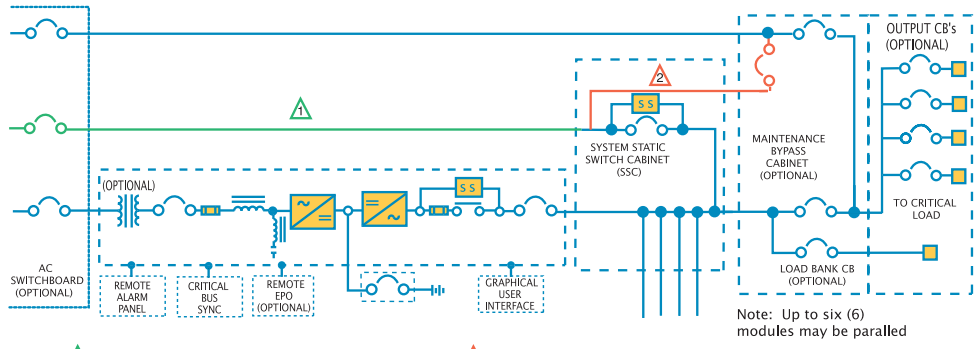
Technical Specifications	300kVA/240kW				375kVA/300kW				500kVA/400kW	
Input Voltage (V)	208	480	480	600	208	480	480	600	480	600
Output Voltage (V)	208	208	480	600	208	208	480	600	480	600
Nominal Input w/o Filter (A)	900	400	400	293	1,100	490	490	367	630	489
Maximum Input w/o Filter (A)	1,125	500	500	366	1,375	613	613	459	788	611
Nominal Input with Filter (A)	740	320	320	260	930	400	400	320	545	436
Maximum Input with Filter(A)	930	400	400	320	1,160	500	500	400	681	545
Input Breaker: Frame Size (A)	1,000 (1)	1,000	1,000	1,000	1,000 (1)	1,000	1,000	1,000	1,000	1,000
Trip (A)	600	600	600	600	700 (1)	700	700	700	1,000	1,000
Nominal Bypass Current (A)	833	361	361	289	1,041	451	451	361	601	484
Maintenance Bypass CB and										
Output CB: Frame Size (A)	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Trip (A)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Max Output Current (A)	833	833	361	289	1,041	1,041	451	361	601	484
Max DC Current	647	647	647	647	809	809	809	809	1,074	1,074
Non-linear System Efficiency:	100	100	100	100	100	100	100	100	100	100
100%	93	93	94	93	93	93	94	93	94	93
75%	91	93	94	93	93	93	94	93	94	93
50%	91	92	93	92	91	92	93	92	94	92
Full Load Heat	66,396	61,636	52,269	61,666	82,995	77,045	65,336	77,000	79,453	(3)
Rejection(BTUs)										
Module Width: (75"Hx32"D) (2)	162	113	63.5	162	162	113	63.5	162	113	(3)
(without filter) UPS Weight(lbs)	9,815	8,379	5,543	9,815	10,440	8,836	5,612	10,440	7,211	(3)

(1) @480 volts. Contact MGE for optional input CB at 208 volts (2) Input filter: 300-375 kVA add 18 inches, 480/480 only, 500kVA internal to UPS
(3) Call factory for details ▪ Single Module Only

EPS 6000 Single Module



EPS 6000 Parallel Module



Standard Features

- Low kVAR input filter
- IGBT PWM inverter w/Digital Power Quality logic
- 6 pulse rectifier
- Serial and dry contact communications interface
- Computer aided diagnostics
- Advanced battery management
- Front only access
- Redundant fan assemblies

Input

- Input Voltage: 208/480/ 600 VAC (3ph,3/4W + GRD) +10/–15%
- Frequency (Hz): 60 Hz ±10%
- Power Factor: 0.9 lagging, .95 with filter 4 kVAR max leading
- Input Current Distortion: 7% (500kVA-5%) THD at full load

Output

- Power Factor: 0.9
- Voltage: 208/480/600 VAC (3ph, 3/4W + GRD)
- Frequency: 60 Hz, ±2.0 Hz (selectable) 0.1% free running
- Voltage Regulation: ± 0.5% steady state (±2.5% 100% step load)
- Voltage Distortion: 4% max for non-linear loads w/crest factor of 3.5 2% max linear load
- Inverter Overload: 125% for 10 minutes, 150% for 1 minute,
- Unbalanced Load: Up to 100% 120˚ ±3% (unbalanced load) max. angle displacement, ± 2.5% max. voltage deviation

Bypass Input

- Voltage: +10/–15% UPS output voltage (3ph, 3/4W + GRD)
- Frequency: 60Hz (±0.25 Hz up to 2 Hz)

DC Rating

- Nominal Voltage: 480 VDC

Environmental Specifications

- Operating Temperature: 0˚C to 40˚C (32ºF to 104ºF)
- Non-operating: –20ºC to +45ºC (–4º to 113ºF)
- Audible Noise: 75 dB @ 5'
- Relative Humidity: 0–90% non-condensing

Options

- Input Isolation Transformer
- Graphical User Interface with Network Connection
- Battery Disconnect
- External Maintenance Bypass
- Critical Bus Synchronization Module
- Remote Alarm Status Panel
- Output Distribution (Panelboard or CB)
- Continuous Duty and Overlap System Static Switch Cabinet (SSC)
- SNMP/Network Management Card
- Bottom Cable Entry
- Seismic Anchors
- Battery Monitoring

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